THESIS BOOKLET

EMESE BOKSAYNÉ PAP

# Multilinguals' intersemiotic translations into L3 English. A grounded theory on reliance on languages in the multilingual mental lexicon

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2021

*“(…) multilingualism does not present an exception but the rule.”*

*Jasone Cenoz and Ulrike Jessner*

*“Grounded theory method is not for the faint-hearted.”*

*Cathy Urquhart*

*“Doubts are good. Confusion is excellent. Questions are awesome.”*

*Manoj Arora*

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# 1 Introduction

Thorough knowledge of how individuals who have command of and use more than two languages employ their linguistic resources to arrive at new understandings in the various processes of learning in educational contexts is imperative for the teachers involved in the teaching of the ever-diversifying multilingual classrooms (Warshauer & Ball, 2004). Despite recent advances in research on multilingual language learning and use as cognitive phenomena, present teaching practices suggest that multilingual individuals' meaning making processes in a foreign language are not properly understood, and they are usually assumed to be identical with the meaning making processes of monolingual or bilingual language users. Educators' acknowledgment of multilingual individuals' possible use of other languages than the target language in the language classroom is also fuelled by misconceptions which have at root outdated suggestions of the best ways to teach a foreign or additional language, such as that of Fries (1945), Asher (1969), and Krashen and Terell (1983). As a result, the language classroom default setting is to discourage learners from the use of their native language, and indeed the use of any other language than the target language to be learnt (Butzkamm & Caldwell, 2009). This approach therefore ignores that the learners, and in general language users, in the processes of language learning and use employ their other linguistic resources whether their teachers want them or not.

The exploratory study presented in this thesis aims to investigate how multilingual individuals employ their languages during the process of composing a narrative in one of their non-native languages, English, with a special focus on how the search for the target language words takes place. The aim of the study is to contribute to the understanding of multilingual language reliance and the characteristics of the multilingual mental lexicon (henceforth MML) and to put forward an improvable theory, that is, a "theory of the middle range" (Merton, 1949, p. 39).

Recently, multilinguals' reliance on multiple languages has captured researchers' interest, and it has been examined to some extent in language-acquisition contexts (Cenoz, 2001), in translation processes (Gabrys-Barker, 2006), and writing (Gunnarson et al., 2015). While research has focused on a wide range of multilingual individuals possessing different multilingual language repertoires with various language combinations, contexts where Hungarian is one of the languages comprised by the individuals' linguistic repertoires remain largely unexplored. The present study, by exploring the multilingual language processing of 12 Transylvanian-Hungarian multilingual participants, aims at improving the understanding we have about multilingual language users who use Hungarian as one of their languages.

# 2 Theoretical background

## 2.1 *Multilingualism*

Multilingualism—knowledge and use of several languages—is far from being a new phenomenon (Cenoz & Jessner, 2009), yet it only gained important research momentum in the recent two or three decades. Multilingualism has been *rediscovered* in a range of major research areas such as sociolinguistics (Blommaert & Backus, 2013), education (García et al., 2012), language learning (Cabrelli Amaro et al., 2013), psycholinguistics (Hofer, 2015), and neurolinguistics (Uljarevic et al., 2016). In disciplinary literature the issue of multilingualism, and its related term *multilingual*, are not as easily delineable as they look at first glance. Lively debates are in progress regarding both the use of the terms *multilingualism* and *multilingual* and the definition of the concept of *multilingualism* (De Angelis, 2007). These debates are rooted in the following reasons. (1) The phenomenon of multilingualism is far more complex than that of bilingualism and one of its main characteristics is the Gestalt principle *the whole is greater than the sum of its parts* (Aronin & Singleton, 2012; Kemp, 2009). The complexity of the multilingual phenomenon stems from it being an interconnected whole of a range of varied elements both at the level of the individual, at the level of groups of individuals, and of the society at large. (2) There is no unanimous agreement as to what constitutes multilingual phenomena in terms of knowledge and use of languages. (3) Currently, there are several concomitant notions in use—competitors of the notion multilingualism—which attempt to name and describe very similar linguistic phenomena. These competitors are *plurilingualism* (European Observatory on Plurilingualism, 2005)*, polylanguaging* (Jorgensen, 2008; Jorgensen et al., 2011), and *translanguaging* (Lewis et al., 2012; D. Wang, 2019). The issue of defining the multilingual phenomenon unambiguously and providing a definition which "contains nothing which is not clear" (Peirce, 1878, p. 286) is also complicated by the fact that some of the elements that have to be included in its definition are also challenging to define. A relatively recent definition of multilingualism states that:

> [t]he term/concept of multilingualism is to be understood as the capacity of societies, institutions, groups and individuals to engage on a regular basis in space and time with more than one language in everyday life. Multilingualism is a product of the fundamental human ability to communicate in a number of languages.(Franceschini, 2009, pp. 33–34)

In the present study, I adopted a broader approach as to the number of languages to be included in the multilingual repertoire, considering multilinguals to be individuals who know and can use more than two languages separately or interwoven with fluctuating linguistic and communicative competence depending on the communicative situation or the linguistic

problem to be solved. The construct of multilinguality thus defined is in line with the complex and dynamic nature of multiple language knowledge and use, and the multilingual continuum construct proposed by Herdina and Jessner (2002).

## 2.2 *Models proposed to account for multilingualism and the MML*

Mental lexicon has been defined as “the backbone of language ability” ((Libben & Jarema, 2002, p. 2). The multilingual mental lexicon thus is assumed to bend together more than two such “backbones”. Different theoretic models have been developed to explain the MML: (1) the Dynamic Model of Multilingualism (Herdina & Jessner, 2002); (2) the Modular On-line Growth and Use of Language (Sharwood Smith & Truscott, 2014); and (3) the Personal Lexical Space model (Kit & Berg, 2014).

### *2.2.1 The Dynamic Model of Multilingualism (DMM)*

Herdina and Jessner (Herdina & Jessner, 2002) formulated the DMM to explain what it means to know and use several languages. This is the earlies model that expressly focused on the multilingual condition, and detached it from the theories and models of monolingualism, bilingualism and SLA. Herdina and Jessner (2000, 2002) adopted the principles formulated in the disciplines of complexity, networks dynamics, and open systems as described by Von Bertalanffy (1968), Barabási (2002), Newman, Barabási and Watts (2006), and Levins (1970) to account for the organization, functioning and development of the MML. The languages accommodated in the MML are seen by this model as individual entities integrated in a *whole* characterised by autopoiesis, that is by the ability to re-create and organize itself. Multilingualism in the DMM is “one body (which) houses more than one linguistic systems” (Mufwene, 2001, p. 63). The dynamic model, as its name suggests, places importance primarily on the dynamic characteristics of languages within the multilingual linguistic system, namely on their being in continuous motion and change determined by a series of contextual factors.

### *2.2.2 The Modular On-line Growth and Use of Language Model (MOGUL)*

MOGUL model was developed as a very broad psycholinguistic theoretical framework to explain all types of language acquisition and learning. Sharwood Smith and Truscott (2014) proclaimed the model as being *multilingual*; nonetheless, their discussion of languages is restrained to the L1 and L2, with the provision that the L2 is a cover term for every other language beyond the native language. As a consequence, the model advances a lopsided view of the mental lexicon, which discusses the connections between the L1 and subsequently learnt languages, but the connections that can establish between/among the

subsequently learnt languages themselves are paid little attention. Even so, the MOGUL model possesses some components and characteristics which can be gainfully employed in the discussion of a mental system that accommodates multiple languages. The model proposes a modular system, as a basis of the "architecture of the language faculty" (Sharwood Smith & Truscott, 2014, p. 22), that has its origins in the somewhat rudimentary compartmentalization of language processing put forward by Chomsky (Chomsky, 1965), and the most progressive interfaced-modularity developed by Jackendoff (1987, 2002). The modular arrangement of the MOGUL system means that its whole is built up by independently operable units, or modules, which "nevertheless share the same basic structure" (Sharwood Smith & Truscott, 2014, p. 19): an "'information store' of structures" and a "computational system" with the role in establishing how the structures from the information store are to be combined in meaningful sequences (Sharwood Smith & Truscott, 2014, p. 19).

### *2.2.3 The Personal Lexical Space Model (PLS)*

Kit and Berg (2014) developed the PLS based on observations of how professional translators activate the lexical units belonging to their different languages during various translation tasks. Kit and Berg (2014) highlight that lexical knowledge of multilinguals is profoundly idiosyncratic, and they propose a balanced, horizontal organization of languages in the mental lexicon. Thus, the individual's L1 lexicon is viewed to share the same *space* with the lexicons belonging to the other languages. The lexical units making up the lexicon are defined as "words and combination of words" (Kit & Berg, 2014, p. 193). The sum of the individual lexical systems is a "personal lexical space" (Kit & Berg, 2014, p. 193). Such a lexical space comprises lexical units as symbolic representations and the series of meanings attached to these representations. In an ideal situation, each symbolic representation has attached at least one meaning. Similarly, each meaning is attached to at least one symbolic representation. The connections between symbolic representations and meanings materialize in the individual's lexical knowledge. Unattached symbolic representations are meaningless and useless. Unattached meanings have a limited usefulness and, when they surface instead of the lexical unit, they are perceived as circumlocutions. Based on Kit and Berg (2014), the uselessness and the lack of meaning enter the language user's consciousness and become a *necessity* akin to the to the "gap" defined by Gass (1997) as "the recognition that there is something to be learned" (p. 4). The PLS model thus views language users' languages in a process of continuous development fuelled by their attempts to fill in the gaps, to use Gass's (1997) apt metaphor.

Starting from the point of view that models for the same target system are not

mutually exclusive (Davidson Reynolds, 2016; Gioia & Pitre, 1990; Wimsatt, 2007), the present work does not call into question the other MML models that have been put forward, rather it seeks to take an alternative look at the phenomenon of multiple languages coexisting in the same MML. The gain an alternative look at the MML, in the search of new insights, I adopted a qualitative research paradigm and harnessed the possibilities of discovery promised by the grounded theory method (GTM).

### 2.3 *Intersemiotic translation as meaning making*

A verbal response to a visual stimulus is an instance of intersemiotic translation (Aktulum, 2017; Jakobson, 1963), that is, a conversion from a pictorial code into the linguistic code (Dusi, 2015). Tasks of verbal response to visual stimuli have been often employed in empirical research because of their power to provide information about the steps an individual follows in constructing meaning and about how lexical activation and retrieval take place (Holsánová, 2008). Meaning-making is "the process by which people interpret situations, events, objects, or discourses in the light of their previous knowledge and experience" (Zittoun & Brinkmann, 2012, p. 1809). Some of the earlier studies of multilingualism that used visual stimuli to explore the MML are Clyne (1997), Cenoz (Cenoz, 2003) and Boksay Pap (Boksay Pap, 2015).

An intersemiotic task in which the non-verbal signs are pictorial representations starts with the visual recognition of the content present in the pictorial representation and then proceeds with the interpretation of what is seen based on "the visual information acquired earlier" (Lopez, 1996, p. 137) and based on genre-knowledge (Lin, 2016). In an intersemiotic translation of pictorial representations into verbal signs, the linguistic text is crafted out at different cognitive levels: the level of pictorial recognition and interpretation and the levels of lexis (Dusi, 2015; Sonesson, 1989). This complex of processes entails the forward and backward access of the conceptual store system and the mental lexicon. In the case of an intersemiotic translation which requires a non-native language verbal response to visual stimuli the process can be even more complex as described by Potter et al. (Potter et al., 1984).

## 3 Research methods

The main purpose of the research was to gain new understanding about how several languages accommodated within a mental lexicon interact and support the multilingual language user's meaning making in a non-native language in terms of lexical access and retrieval. In addition, my aim was to construct a theory of the MML grounded in the specific context of the study, that is, a middle-range theory of the MML. To address this challenge, I

adopted a grounded theory method approach, which makes possible “taking a fresh look” (Charmaz, 2006, p. 24) at familiar problems.

The study addressed the following two research questions:

1. Which of their languages do multilinguals rely on when they compose a non-native-language narrative based on wordless pictures?
2. Which are the strategies used by multilinguals in the process of searching for non-native words while composing?

### 3.1 *Participants*

To find the answers to the above questions, I conducted an exploratory study with 12 young multilingual participants, who were students at two secondary schools in Transylvania, the western region of Romania. The participants’ native language (L1) was Transylvanian-Hungarian, and their second language (L2), acquired very early in their childhood, was Romanian. In addition to Hungarian and Romanian, the participants used two or three further languages—French, German, and Latin—learned in the educational context.

The participants were purposefully sampled from two secondary schools in Cluj county, in the North-Western region of Transylvania. In one of the schools, the language of education was Romanian. This school did not offer to its Hungarian minority students the possibility to study certain subjects in their L1. All subjects were taught in Romanian. The second school was an educational institution belonging to the Hungarian community. There, the language of education was mainstream Hungarian, thus the students had the possibility to study most of the subjects in their L1. At this school, the students studied both Hungarian language and literature and Romanian language and literature as part of the curriculum. Both schools placed special emphasis on the study of foreign languages.

The participants’ ages ranged from 15 to 18. There were nine male and three female participants. Parental consent was obtained for those participants who at the time of the study were legal minors; that is, they were younger than 18. Six participants were attending the secondary school where the language of education was Romanian. The other six participants were attending the school at which mainstream Hungarian was the language of education. All 12 participants were fluent in both their L1 Transylvanian-Hungarian and L2 Romanian; that is, they were using both languages with a native proficiency.

### *3.2 Data collection*

Data collection spanned from May 2014 to October 2014 and was based on interviews and the think-aloud activity. In the preliminary stage of the study, the participants were sampled purposefully with the help of a questionnaire.

The research study presented in this dissertation aimed at advancing insights into the dynamics of multilinguals' lexical systems, namely the MML, partly by looking at how multilingual individuals relied on their languages in the process of making meaning of non-textual material, and partly by collecting emic-perspective information about how this process took place. To explore how multilinguals used their lexical systems in the meaning making of non-textual material, I employed the think-aloud approach, a typical tool for exploring cognitive processes (Miyuki, 2014; Van Someren et al., 1994). To investigate the multilingual participants' emic perspective about language knowledge and use, and the meaning making participants' emic perspective about language knowledge and use, and the meaning making process I employed the pre-task and the post-task interview. Figure 1 presents the data collection strategies arranged in the order they were employed in the study.

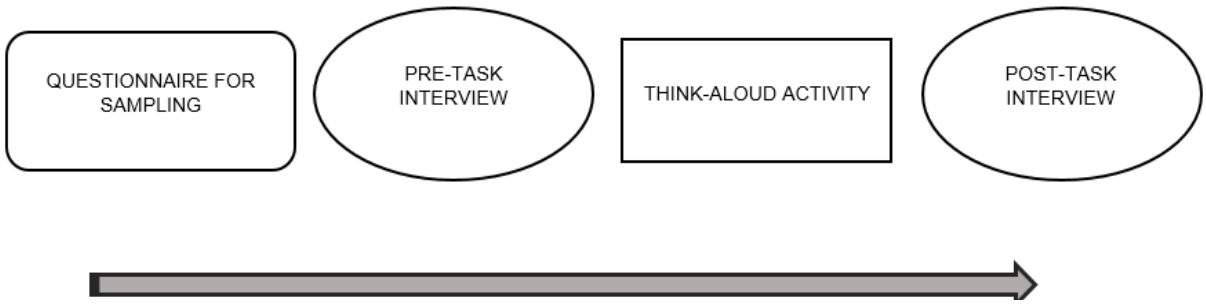


*Figure 1.* Research Tools and Their Chronological Order of Employment in the Study.
The arrow represents the sequence in which the research tools were used.

### *3.3 Data collection strategies and the research tools*

#### *3.3.1 The questionnaire*

As I intended to use the think-aloud method and the interview as methods of data collection, I planned to engage a limited number of multilingual participants to take part in the study. Thus, the sampling of participants was circumscribed first by the research concerns and then by the methods of data collection I envisaged to use. The participants

were sampled with the help of a questionnaire. The questionnaire was devised to collect biographical data and information about language learning and use of a group of respondents belonging to a larger population of multilinguals. The criteria based on which the participants in the study were chosen are presented below:

1. A linguistic repertoire uniting more than two languages at various proficiency levels with “a patchwork of competences and skills” (Blommaert & Backus, 2013, p. 11).
2. The presence of English in the linguistic repertoire as one of the foreign languages learnt (preferably in educational settings).
3. Having studied English approximately four years
4. Usual practice and use of the languages belonging to the linguistic repertoire
5. Familiarity with narrative composition tasks based on pictorial representations

Preparing the questionnaire took place in several “hybrid brainstorming” (Girotra et al., 2010; Korde & Paulus, 2017) sessions with the colleagues in my doctoral-school group and aimed at delineating the criteria for sampling and making adjustments to the wording of questions. Hybrid brainstorming is a type of idea generation where the individual ideation process is systematically alternated with the group ideation process with the aim of exchanging ideas and getting evaluative answers from experts/people involved in similar research areas. In the case of the generating-questions stage, these brainstorming sessions also acted as a preliminary trialling of questions before the actual trialling.

Some 50 questionnaires were handed-out; however, only 28 were returned. Based on the information gained from the respondents to the questionnaire, 12 young multilinguals were invited to take part in the study.

### *3.3.2 The pre-task interview*

I developed the pre-task interview questions after I had already performed sampling and had met the research participants: 12 Hungarian L1 secondary-school students, users of the following additional languages: Romanian L2-English L3-French/German L4 and Latin L5. The development of the questions for the pre-task or preliminary interview took place in five steps in a cyclical process. This cycle is shown in Figure 2.

For the sake of simplicity, Figure 2 shows these five sub-processes as separate actions, following a chronological thread, feeding one into the other. However, in reality, there were multiple overlaps between the steps, in the sense that they took place simultaneously. For instance, reading literature, with different intensity, underpinned the whole process of interview-question development. In addition, at certain points in the process, the steps also occurred in a reversed direction.

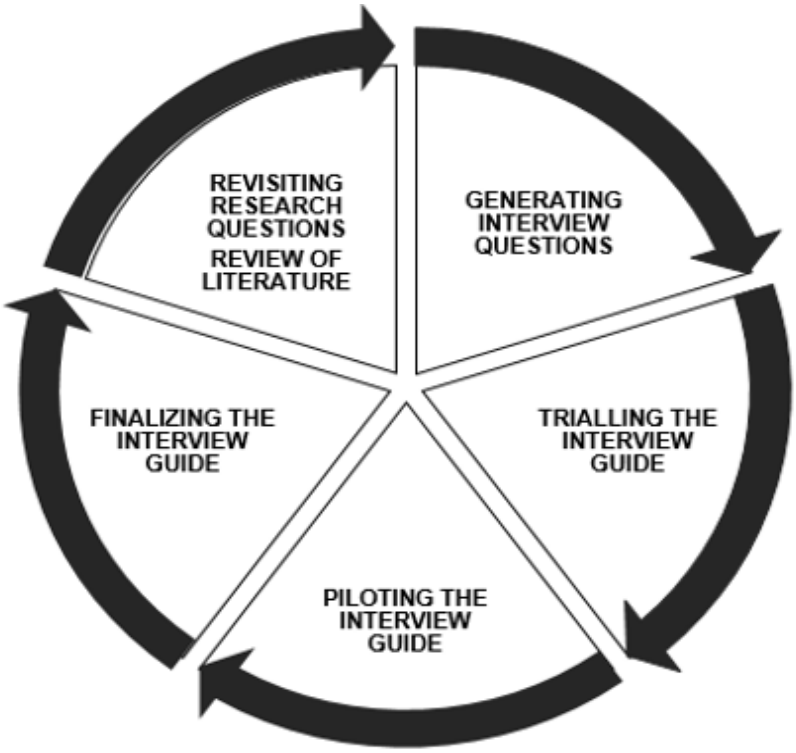


*Figure 2.* The Circle Represents the Frame of the Pre-Task Interview Development Procedure.
The segments of the circle represent the steps taken in the process of developing the questions for the pre-task interview. The arrows represent the directionality of the question-development process. The first stage of the process was the intensive review of literature and an iterative turn to the research questions. The last stage was the drawing up the final list of questions.

The whole process of generating questions for the pre-task interview took place following similar hybrid brainstorming steps to those taken in the development of the questionnaire.

To cater for the sense of maximum security of the participants and to be in line with Gillham's (Gillham, 2000, p. 8) and Seidman's (2006, p. 49) "convenience" principle, the interview sessions were recorded at the two secondary schools attended by the participants. Each participant was offered the possibility to choose the location of the interview from among several particular locations within their school areas.

### *3.3.3 The think-aloud activity*

In my approach to the phenomena of the organization and dynamics of the MML, I decided to develop a think-aloud activity that made possible:

(1) the observation of the participants "practices, perspectives, and processes" (Leighton, 2017, p. 5) during a meaning-making task requiring the use of the L3 English,

(2) keeping the participants' language activation at a minimum so as to support the observation of which language(s) played a primary role in the process of meaning making, and

(3) the observation of whether and how languages interacted, hindered or helped each other in the process of meaning making.

The think-aloud activity has been widely adopted as a research tool in studies exploring human problem-solving because of its potential to yield "a wide range of responses leading to the understanding of the boundaries, parameters, nature and character of the phenomena" (Leighton, 2017, p. 5).

The thinking-aloud sessions took place in two classrooms at the participants' schools. In the think-aloud activity the participants were asked to examine a series of pictures and compose a narrative in English, their L3. They had to write down the L3 narrative. Figure 3 shows the main elements of the think aloud activity. Thinking aloud meant that the participants talked aloud while they were composing the text and verbalised whatever thoughts came to their mind. The task did not have a time limit. Each participant's task-solving process was recorded and transcribed for analysis. The think-aloud data collection approach employed in the study is a compound of several elements each with its own theoretical underpinning: (1) thinking aloud; (2) making meaning of a series of wordless pictures; (3) narrative story composition, and (4) writing. These are described briefly in what follows.

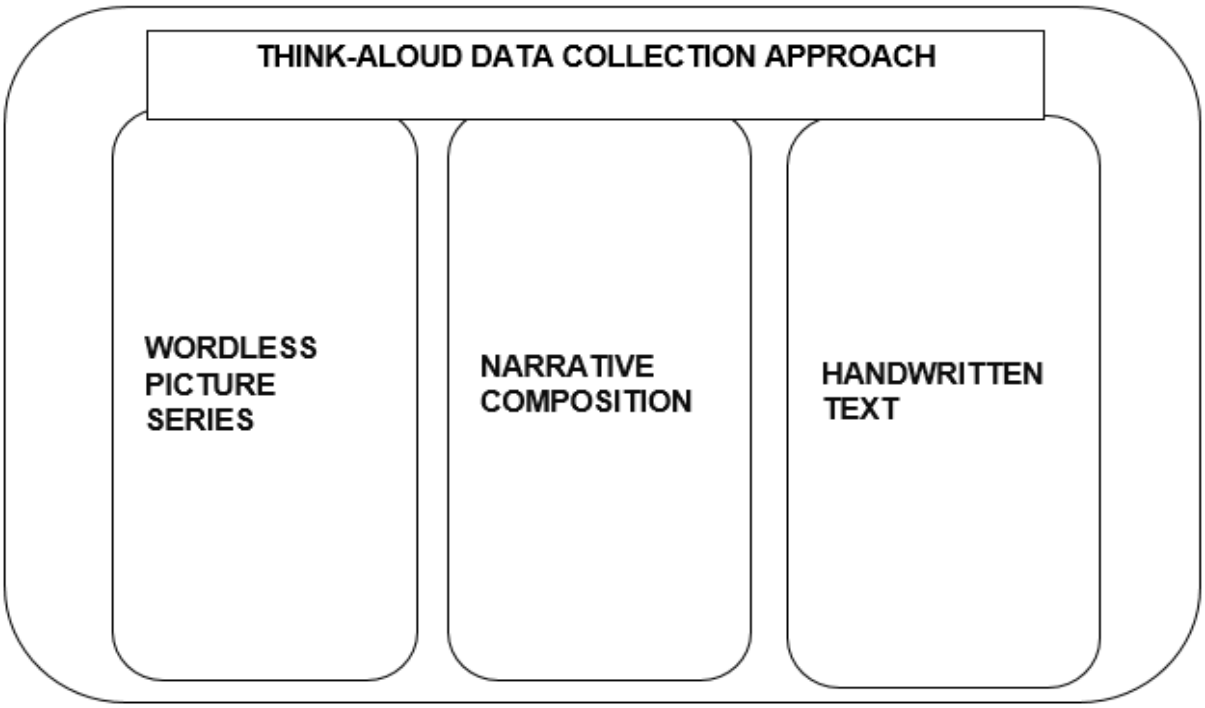


*Figure 3. The Elements of the Think-Aloud Data Collection Process.*

#### *3.3.3.1 Thinking aloud*

In the present study, the actual think-aloud activity was preceded by a pre-think-aloud training session. This involved a short think-aloud demonstration followed by practice. Both the demonstration and the practice used arithmetic word problems in the participants' L1. In the demonstration-stage, the participants had the opportunity to watch a person verbalizing his thought while he was solving the problem. Then, in the practice-stage, the participants got an arithmetic world problem to try out thinking aloud while solving the problem. In practising the thinking aloud process, the participants used the reciprocal think-aloud method, a learning method widely used in text-comprehension (Png, 2007). The advantage of using an arithmetic word problem as a preparatory task preceding the actual think-aloud activity is that it offered the possibility of practice, but it did not "prime the participants for the target structure being investigated in the study" (Bowles, 2010, p. 117). Following the pre-think-aloud demonstration and practice, the participants were engaged in the main think-aloud activity. They received the instructions for the think-aloud in their L1, and they were told that they could use any language they wanted during the composing process, with the stipulation that the final version of the story had to be in English.

#### *3.3.3.2 Making meaning of a series of wordless pictures*

The series of pictures used as prompt in the task was stuck on a board so that they were in front of the participants while they were composing the narrative.

Meaning-making is "the process by which people interpret situations, events, objects, or discourses in the light of their previous knowledge and experience" (Zittoun & Brinkman, 2012, p. 1809). The meaning-making of graphic narratives or pictures arranged in a logico-temporal sequence to tell a story (Eisner, 1985) is a task that can lead to abundant verbal reports as research data because it requires the participants to put to use both their visual interpretive and verbal productive skills (Berman & Slobin, 1994; Holsánová, 2008). The process is creative, incremental and idiosyncratic to each individual and to each situation (Kurzman, 2008). Understanding sequences of wordless picture series and transposing their content into words poses the challenge of linking the seemingly isolated picture panels to make them fit together into a cohesive story. The framed panels capture apparently isolated moments of time and space and, surprisingly, it is the gap between the panels that glues the series of panels together (Eisner, 1985; McCloud, 1994). The *reader* of wordless picture series has to "connect these moments and mentally construct a continuous, unified reality" (McCloud, 1994, p. 67).

The wordless picture series used as the elicitation material in this research study was Tomie DePaola's (1978) *Pancakes for Breakfast*. ). In adopting this particular picture series,

my choice was based on Labov's (1972) story-structure theory, the theory of scene perception formulated by Henderson and Ferreira (2004) and the cognitive load theory in information processing proposed by Sweller (1988) and Hashtroudi, Mutter, Cole and Green (1984).

#### *3.3.3.3 Narrative story composition*

Starting from the wordless series of pictures, the participants had to compose a narrative story in their L3, English; that is, they had to produce an intersemiotic translation in a non-native language. The task was designed to elicit oral protocols which would make visible how the multilingual participants employed the target language of the task and possible other languages in the process of intersemiotic translation. Choosing to ask the participants to compose a narrative, and not another type of composition, was another strategic step in devising the think-aloud task based on the assumptions that the narrative structure is one of the earliest generic forms we come to know in our life (Minami, 2001), and it is one of the commonest generic forms in educational settings (Donovan & Smolkin, 2006).

#### *3.3.3.4 Writing*

The task of producing the L3 narrative composition included the requirement to verbalize and to write the text down in longhand. The decision to ask the participants to write down the story they composed was primarily based on the assumption that writing would slow down the composition process and thus the whole idea and word-generating processes would become more visible. Additionally, the rationale for the use the oral production of idea generation followed by writing, rather than the use of only oral production or only writing, rested on cognitive research evidence for the benefits of using the inner voice or thinking aloud during the process of text composition (Berninger et al., 2009; Chenoweth & Hayes, 2001).

### *3.3.4 The post-task interview*

The set of interviews conducted after the think-aloud procedure was more directed as it was circumscribed by the aims to contextualize the data gained from the pre-task interviews think-aloud protocols.

The development of the post-task interview started concomitantly with the analysis of the verbal data collected in the pre-task interviews, and it gained its final form after the participants completed the think-aloud task. The post-task interview was conducted two days after each participant performed the think-aloud activity. In the intervening time, I engaged in the analysis of the think-aloud data; that is, I listened to the recorded material so as to be

able to extract pieces of information which would allow the formulation of focused questions for the post-task interview.

This analytical process posed the particular challenge of formulating questions based on the first impression created by only one prolonged session of listening. Camps (2003) and Leow (2000) highlighted that developing post-task questions needs swiftness and perceptiveness on the part of the researcher. Obviously, the elaboration of the post-task interview necessitated different steps than that of the pre-task interview, and it did not benefit from the meticulous planning phases of the pre-task interview. Figure 4 presents the stages of the development of the post-task interview.

To add questions about the think-aloud activity, I had to listen to the verbalizations recorded during the completion of the think-aloud task. As a result, the post-task interviews were carried out two days after the think-aloud activity.

The location of the post-task interviews and the employed interviewing strategies were similar to those used in the process of the pre-task interviewing.

During the post-task interview, the participants listened to some recorded segments from their think-aloud protocols and commented on aspects of the way they retrieved the target L3 words to compose the narrative composition. The sessions of the post-task interview were recorded and the recorded material was transcribed. The transcription of the interviews was based on the transcription guidelines developed by Winsler, Fernyhough, McLaren and Way (2005).

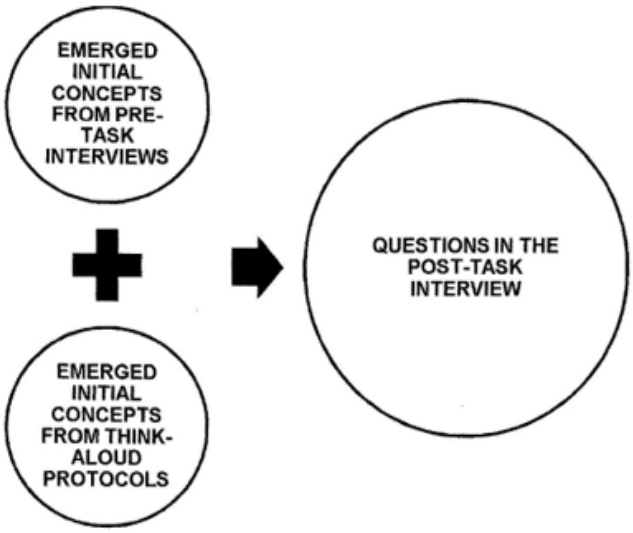


*Figure 1.* The Post-Task Interview Schedule Integrates Questions Based on the Initial Concepts that Surfaced in the Analysis of the Pre-Task Interview Data and the Think-Aloud Verbal Protocols.
The first stage in the development of the post-task interview schedule was the analysis of the pre-task interviews. The second step was the analysis of the think aloud verbal protocols.

### *3.4 Data analysis*

One of the special particularities of the grounded theory method is data analysis: it is "systematic and begins as soon as data is available" (Urquhart, 2013, Data analysis using GTM section). In the present study, analysis involved the following activities: listening to the recorded data, writing research memos, transcribing recorded data, re-listening to data and re-reading the transcribed texts, naming segments of data by using codes, arranging codes in groups, looking for similarities and differences across larger chunks of data, re-arranging codes to form categories and grouping categories to form tentative frames of theory. These steps did not take place linearly, and some of them, such as arranging codes in groups, looking for similarities and differences across larger groups of data, rearranging codes to form categories were subsumed under the broad activity of *coding*. I coded the research data in several sessions. During the early phases of data analysis, I coded by hand, using highlighter pens, paper note stickers and tables in which I organized data. Only later did I start to use the Quirkos qualitative data analysis software and reanalysed the collected data for a third time.

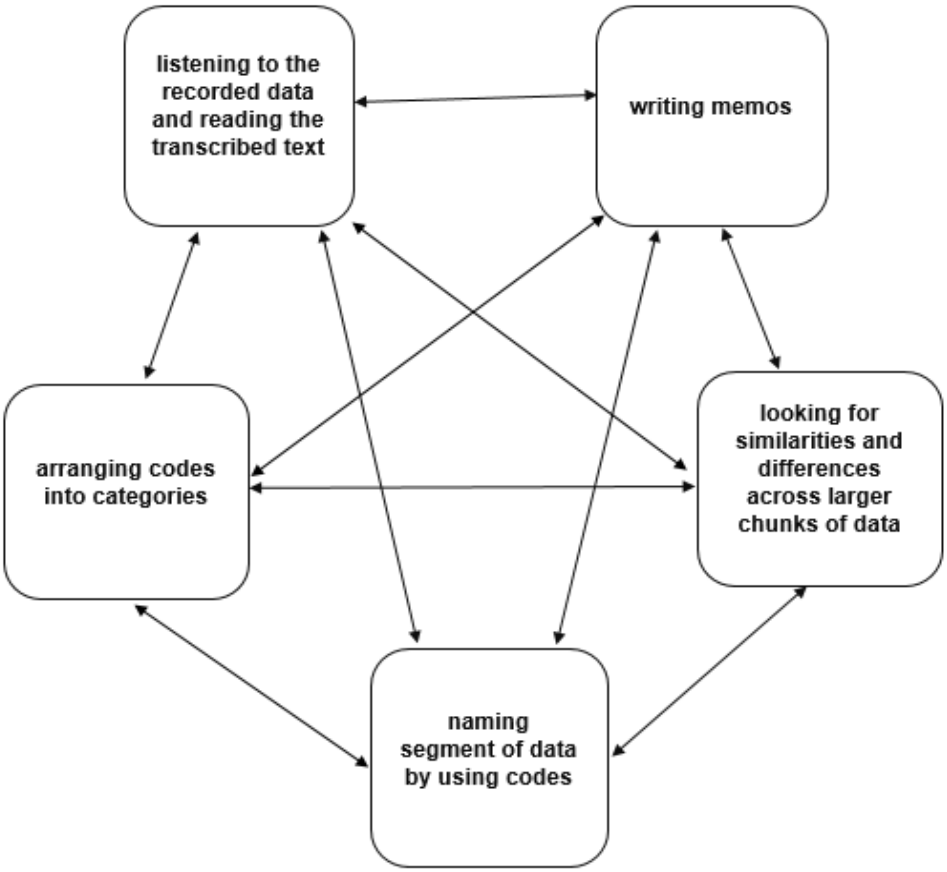


*Figure 5.* Simplified Succession of Steps in Data Analysis.
The complexity and multi-directionality of the process is represented by the bidirectional arrows.

One of the major challenges of GTM data analysis is that it depends on the constant comparison of data, that is, looking for similarities and differences within the data, and this sometimes makes the process of analysis difficult to carry out. To foster understanding of the analytic process in GTM, Figure 5 provides a simplified chart of the basic stages of data analysis and the moves between them. The back-and-forth movements between the stages of data analysis are also the steps of the constant comparison process (Charmaz, 2006; Reichertz, 2007; Urquhart, 2013, 2019) which took place during the whole process of data analysis.

In transcribing the recorded data, I adopted the transcription and coding guide developed by Winsler and his research team (2005). The unit of analysis was the *utterance*, or *strings of speech* which comprised: *sentences*, *sentence fragments* and *clauses.*

Coding is an interpretive operation in which the researcher "operates as the central processor of data" (Hadley, 2017, p. 33). Codes are tags which the researcher uses to capture the essence of units of data with the view of analysing data. Segments of data are *named*, that is succinct descriptive phrases are used to summarize the essence of the segment. Codes "are based on a combination of the researcher's scholarly knowledge and knowledge of the substantive field under study" (Strauss, 1987, p. 34). Coding is one of the basic constitutive elements of data interpretation action, it is inseparable from abductive reasoning, it keeps moving the constant comparison of data and the gradual identification and construction of concepts. The three layers of coding are:

- Open coding,
- Focused coding, and
- Theoretical coding.

Open coding is set in motion very early, almost simultaneously with data collection. In the open coding phase, the researcher is guided by both the research questions and theoretical sensitivity. Open coding entailed a decomposition of textual data into ideas, situations, and events, which appeared encapsulated in the participants' utterances.The units of data were named using labels that captured their essence in the sense of analytic summaries (Urquhart, 2013).

Open codes were evaluated in terms of their *valence*, namely, in terms of their degree of combining power, or relative capacity to form links with each other. In the phase of focused coding, the open codes were elevated to a more abstract level, and they were grouped based on their properties and dimensions, paying attention to their relation to the focus of research inquiry. To understand what the process of elevation consists of, it is useful to use the analogy of chemical elements and their valences. The valences give chemical elements their degree of combining power. The open codes, similarly to chemical elements,

have different valences, that is, different strength of combining. Some of them possess a high degree of combining power. These types of codes are the focused codes. In the present study, they were employed in developing relationships and in building the interpretive network. Other codes possessed a moderate valence or had no valence. These had a limited usability from the perspective of theory formulation and answering the research questions and, as a consequence, they were discarded.

Theoretical coding is the most intellectually challenging phase of the GTM analysis. This is a concluding phase, in which data analysis is moved in a theoretical direction by *aggregating* the focused codes, frequently referred to as *categories* (Charmaz, 2006; Urquhart, 2013). The combination of categories entailed the development of relationships between categories and their subcategories by identifying their relational properties. Theory building corresponded to the act of choosing from among the core categories those that had special relevance for the development of the substantive theory and combining them into a systematic framework which then acted as a set of principles explaining the phenomena of language reliance.

## 4 Findings and discussion

### *4.1 Findings for research question 1: Which of their languages do multilinguals rely on when they compose an L3 narrative based on a series of wordless pictures?*

In the process of composing the L3 narrative using pictorial prompts, all the 12 participants attempted to use directly their L3 in the intersemiotic translation process aimed at building the text. The analysis of the think-aloud verbal protocols revealed that the participants employed three languages in the process of interpreting the pictures and composing the L3 text: L1 Hungarian, L2 Romanian, and L3 English. The characteristics of the participants' overall reliance on languages were the following:

- The ability to selectively use languages and to inhibit those deemed irrelevant for the task;
- The assignment of roles to languages in the process of composition;
- The effortless ability to switch between languages; and
- In the triad L1 Hungarian-L2 Romanian-L3 English, L2 Romanian and L3 English seemed to share closer links.

The participants employed L1 Hungarian mainly in their metacognitive talk for a) identifying the task, b) setting goals, and c) justifying the choice for a particular solution. In addition, and to a lesser extent compared to the L2 Romanian, the participants used their L1 Hungarian as a linguistic assistant and for creating meaning. The role of L1 Hungarian was

pre-eminently a regulatory role in planning and monitoring the process of producing the L3 English narrative. This finding is in line with previous research exploring metacognitive talk in second language learners (Alderson-Day & Fernyhough, 2015; Centeno-Cortés & Jiménez Jiménez, 2004; Fernyhough, 2016; Resnik, 2018; W. Wang & Wen, 2002), re-confirming the critical role of L1 in self-regulation and problem-solving (Morin, 2005; Morin et al., 2018; Sokolov, 1972).

A key finding of the present study is the participants' limited reliance on their L1 Hungarian as a support language for L3 English in those situations when retrieval of the L3 English words proved difficult either because the participants did not remember the L3 English word or because they did not know the L3 English word to name a particular pictorial representation. With respect to reliance on L1 Hungarian, a mixed pattern of findings resulted. The six participants who were attending the mainstream Romanian education relied on L1 Hungarian little or they did not rely on it at all. The six participants who were enrolled in the Hungarian minority education program employed their L1 Hungarian more than their Romanian-language-of-education peers; however, they employed L2 Romanian as well as a linguistic support.

The idea of more substantive reliance on an L2 as support language for an L3 production might be a vexing one for most of the SLA and bilingualism researchers and theorists accustomed to a bi-dimensional mental lexicon, where, if a scaffold is needed for the newly acquired or less developed language, only the L1 can fulfil this role (e.g., Altarriba & Basnight-Brown, 2009; Bhooth et al., 2014; Van Rinsveld et al., 2017). Based on the L2-on-L1 dependence principle, the mechanism has been wrongly supposed to apply for the mental lexicons uniting more than two languages (De Angelis, 2007). To date, only few studies have showed that other languages than L1 can act as scaffolds for an additional language (e.g., Falk & Lindqvist, 2018; Herwig, 2001; Lindqvist, 2009; Schönpflug, 2003).

In the present study, my attempt was to go beyond the simple identification of the existence of the strong associations between L2 Romanian and L3 English lexica, and find tentative explanations of why these associations are established. Data grounded in the interviews conducted with the participants suggest two possible explanations: one connects the L2-L3 associative links to the existence of similarities in the vocabulary across languages (a phenomenon already well-documented by research); the other connects the L2-L3 associative links to the feeling of ease of processing the two languages together as a result of encoding the L3 in an L2 context and subsequent successful recall of the L3 lexical units from an L2 prompt. The research participants' effortless switches between the three languages they relied on suggest a simultaneous activation of the lexica of L1 Hungarian, L2 Romanian, and L3 English. Simultaneous activation of two or more languages is a

phenomenon with two components: the flexible ability to alternate between languages, which has been recently termed *translanguaging* (García & Wei, 2014; Paulsrud et al., 2017) and the ability to consciously keep languages apart (Giezen et al., 2015). The intentional selection between languages has been found to be positively associated with daily immersion in the L1 and the L2 language contexts (Tao et al., 2011) and with high bilingual proficiency (Singh & Mishra, 2012), conditions which existed in the case of all the 12 research participants. Recent research has also revealed that the ability to suppress languages which are not relevant to the task is even more developed in the case of language users of more than two languages (Madrazo & Bernardo, 2012, 2018). Based on the basic assumption of the simultaneous language activation principle that multiple language users "do not switch a particular language on or off but that their languages have different levels of activation" (Dewaele, 2001, p. 70), it can be assumed that the participants' French, German and Latin languages were on a very low level of activation. The effortless alternation between languages and the ability to keep them 'backstage' give evidence for the multilingual participants' "streamlined" (Aitchison, 1987, p. 190) mental lexicon, one organized for maximum efficiency.

The concerted use of L1 Hungarian, L2 Romanian and L3 English can also be interpreted within the language-mode model (Grosjean, 2001, p. 2), which offers a detailed explanation of how the activation and deactivation of the languages, and thus lexica, take place along a continuum.

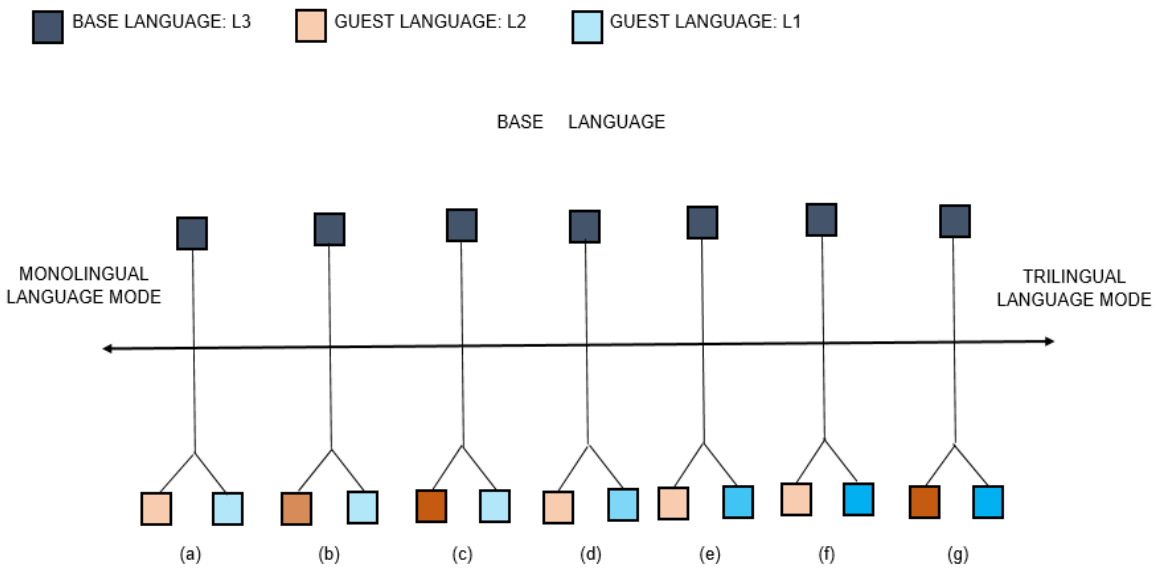


*Figure 6.* Grosjean's (2001) Modified Language-mode model.
The different intensity of colours represents the different activation levels of the languages. Between the monolingual language mode pole (a) and the trilingual language mode pole (g), the intermediary stages (b)-(f) represent various bilingual and partial trilingual language modes tending toward the trilingual language mode.

The model was originally developed for bilingual language production, but it can easily be extended to multilingual contexts (Dewaele, 2001). Based on the findings of the present study, in Figure 6, I propose such an extended model, a simplified graphical representation of the way how the three languages, L1 Hungarian, L2 Romanian, and L3 English appeared to be simultaneously and concomitantly activated in the process of composing the L3 narrative.

The other languages known by the participants, French, German and Latin, were not incorporated in the model as their level of activation turned out to be very low during the process of composing the L3 narrative. The base language, in the extended model, is L3 English, as it was the target language of the composition task. The participants knew that they had to compose the narrative in English and, as a consequence, their L3 English level of activation rose and was kept at a high activation level. The extended language-mode model, unlike Grosjean's (2001) original model, contains two guest languages: L2 Romanian and L1 Hungarian because these two languages became active along with the L3 English. The level of activation of each of these two languages oscillated depending on the extent they were relied on in the process of composing. The range of activation of the guest languages L1 Hungarian and L2 Romanian is captured in Figure 22 in the intermediary stages from (b) to (f) representing varied intensities of bilingual and partially trilingual language activation modes. The extended model reduces the variation of intensities to five intermediary stages (b)-(f) and thus the real interplay of languages is represented in a reduced way. Actually, these intermediary stages of language activation are infinite and have to be conceived as a stream of interconnected states in a continuous bidirectional fluctuation.

The participants' seemingly effortless switch between their languages was a characteristic of the L3 narrative composition process, but it was also reported during the interviews by several participants as a habitual activity, pertaining to their daily life. This capacity to alternate between several languages suggests the participants' efficient metalinguistic skills (Clyne, 1997), that is, their well-developed awareness of being able to employ languages to attain desired goals.

### *4.2 Findings for research question 2: Which are the strategies used by multilinguals in the process of L3 lexical retrieval while composing?*

Data from the think-aloud verbal protocols revealed that the participants employed two strategies to come up with the L3 lexical units needed to complete the narrative task. These two ways of L3 word access were the following:

- relying on either L1 Hungarian or L2 Romanian as support languages in the search for L3 words, and
- using the Romanian-English dictionary to look up the L3 English words.

All the 12 participants attempted to create meaning based on the series of wordless pictures by employing their L3 lexicon, and only when they lacked the L3 vocabulary did they resort to either their L1 Hungarian or their L2 Romanian. Several reports from the interviews pointed towards the fact that these two ways of accessing L3 English words (and the words pertaining to the other foreign languages they knew and used) were used also in other instances, in their mundane linguistic activities. he words of L1 Hungarian, in some instances, acted as prompts for the retrieval of L3 English words. However, the presence of L1 Hungarian in the process of searching for the L3 English target words was fleeting in comparison to that of L2 Romanian. However, the fact that the participants employed both L1 words and L2 words to assist them with L3 word-retrieval suggests that the lexical units of the languages L1 Hungarian-L2 Romanian-L3 English had developed associative links, links that appeared to be more substantial, or at least "more travelled" paths in the case of the L2 Romanian-L3 English pair. The pattern of L3 English word retrieval identified in the case of the L1 Transylvanian-Hungarian participants can be modelled based on the two-step word-retrieval scheme cued by pictures identified by Goodglass (1980) and Goodglass et al. with the modification that, in the case of multilingual language users this model includes more than one language. Data from the think-aloud protocols suggest that in retrieving an L3 English lexical unit, there is an "automatic" (Goodglass et al., 1984, p. 135) first step, in which the participant swiftly retrieves the L3 English word deemed relevant to the task of text-building. If the first step, however, is not successful, that is, retrieval is blocked, then a second, more protracted phase follows, termed "voluntary" (Goodglass et al., 1984, p. 136) in which the participant summons the "associations which might produce a correct response", in this case, the required L3 word. The associations, and by extension the search, entail connections within and across languages, namely across L1 Hungarian and L2 Romanian. This issue is of relevance because at present there are contradictory assumptions about until when the users of multiple languages rely on their L1—or the L1 and additional languages.

According to one view, associations between languages of a multilingual weaken as the individual's second or foreign language proficiency and lexicon develops, while the associations between the individual's conceptual store and foreign language lexical store become stronger (Potter et al., 1984). As a consequence, the lexicon of the second or additional language, which was learnt through the medium of the L1 becomes autonomous and can operate directly on a conceptual store-mental lexicon channel. This results, of course, in a certain degree of automaticity and thus swiftness in producing the lexical items of the second or additional language. Potter and her colleagues' (1984) theory would explain the participants' ability to access and retrieve directly L3 lexical units during intersemiotic translation.

According to a second view, the associations between languages of a multilingual do not weaken as their proficiency and lexicon in the second or additional language develops (Francis & Gallard, 2005), but they become able to "orchestrate" (Edelsky, 1982, p. 211) the language systems and the conceptual store, that is, to operate them "cyclically and reflexively, attending to them differentially depending on their difficulty, importance, [and] situational demands" (Edelsky, 1982, p. 211). Within this framework, forward and backward switches between the lexica of two (or more) languages is conceived as a special quality, singular to multiple language users, and it has been shown to operate irrespective of proficiency level (Sasaki, 2001). Within this framework also, the participants' reliance on their L1 and the L2 in the search for the L3 lexical units is viewed as an intelligent harnessing of linguistic resources.

A second strategy which was used by the participants to reach the L3 target lexical unit deemed relevant for the narrative composition was looking up the L3 English word in the bilingual Romanian-English dictionary. Somewhat intriguingly, this dictionary was preferred to the Hungarian-English dictionary by all the 12 participants. Preference for the Romanian-English dictionary over the Hungarian-English one was explained by the participants as being connected to the requirement of using the Romanian-English dictionary at school, in both educational contexts—L1 Hungarian minority education and L2 Romanian mainstream education—a requirement which seems to have led to a learned behaviour through systematicity (Lally et al., 2010). Another possible reason for not using the Hungarian-English dictionary was the deficient lexical coverage of that particular dictionary available in that context. In an attempt to include reliance on a bilingual dictionary among the strategies of L3 word retrieval, Goodglass and his colleagues' (1984) model could be extended to also account for this type of word-search. Thus, returning to the model discussed above, following step one, in which a rapid but unsuccessful search for the target L3 word takes place, a second step would follow. In this phase, the multilingual individual mobilizes his/her word associations across the lexica pertaining to several languages (here the L1 and the L2). In the case of an unsuccessful second step, in step three, the search for the target L3 word would continue with the aid of reference materials, that is, with the use of bilingual dictionaries. Goodglass and his colleagues' (1984) model extended this way could account for target word searches performed by multilinguals, and for cases in which target word searches include the consultation of reference materials.

## 5 The Substantive Theory

The study explored how reliance on languages takes places in an L3 linguistic problem solving situation in a multilingual context, and found that the participants relied on both their L1 and the L2 in the retrieval of L3 words; however, the L2 seemed to have been

favoured more in this process, acting as a support language for the L3. The developed theory attempts to explain the relationship of reliance established between two non-native languages within the MML, how such a relationship may establish and evolve, and why such a reliance relationship has chances to establish between non-native languages.

Based on the data collected in the research study, I propose a substantive theory that draws partially on concepts from cognitive psychology and suggest that one possible organization and functioning of the MML can be accounted for by the joint effects of encoding specificity (Reder et al., 1974; Tulving & Thomson, 1973) and processing fluency (Kurilla & Westerman, 2008; Unkelbach & Greifeneder, 2013). Data collected in the study suggest that the phenomenon of using languages together is intimately connected to metalinguistic awareness. The core categories of the substantive theory put forward are *languages used together* and *metalinguistic awareness*. Between these two core categories there is a cyclic causal relationship, in the sense that the many ways of using languages together by a multilingual lead to a heightened metalinguistic awareness, which in turn can be conducive to a flexible and efficient harnessing of linguistic resources. The dynamics of this growth process turns the multilingual language user into a *linguistic connoisseur*, an individual who enjoys using their languages with discrimination and appreciation of subtleties. The cyclic causality that links the categories of using languages together and metalinguistic awareness integrates well with the dynamic model of multilingualism (Herdina & Jessner, 2002) because the mutual influence, which is suggested to exist between the two elements of the substantive theory, may account for the dynamics of several languages, and by extension, for the dynamics of the lexica belonging to these languages.

The phenomenon of languages used together, one as a support for the other, is suggested to be one of the characteristics of the MML in which the lexica of different languages are at different levels of development. Simultaneous reliance on more languages is suggested to develop multilingual metalinguistic awareness, which in turn assists in orchestrating the lexical resources of multiple languages. The employment of languages together, one as a support for the other, in lexical retrieval is suggested to be possibly determined by:

- the context of encoding the words of one of the languages through the words of the other language,
- the processing fluency experienced in the retrieval processes involving the words of the two languages, and
- the similarities at the lexical level of the two languages.

# 6 Conclusions

The present small-scale exploratory study looked at how 12 young multilinguals relied on their multiple languages in the process of a non-native language problem solving, namely the completion of a narrative composition in the L3 English, and at how they accessed and retrieved the L3 English target words during the composition process.

The analysis of the data revealed that the multilingual language users involved in the study were competent language users of their multiple languages. In the process of the L3 English composition-task, they relied on their L1 Hungarian, L2 Romanian and L3 English with different purposes to create the target L3 English narrative. Interestingly, the findings suggest that an L2 can be preferred to an L1 in the process of retrieval of difficult-to-retrieve L3 words. Based on the findings, the substantive theory developed in the study proposes reliance on support languages, that is languages used together as a characteristic feature of the multilingual mental lexicon, and suggests that metalinguistic awareness has a cyclic causal relationship with the characteristics of the languages used together. The two determining factors at the root of languages relied on in tandem are suggested to be the encoding context of the foreign language words and the repeated experiences of fluency-in-retrieval of the foreign language words in the presence of, or prompted by, the words of the other languages that were present in the encoding context. Additionally, the experience of fluency-in-retrieval of target language words is also supported by the lexical similarities between or across languages.

In an effort to broaden the understanding of the processes involved in multilinguality, I have attempted to situate the complex construct of the multilingual mental lexicon in the realm of cognitive sociolinguistics and examine cognition and language use in the context where they take place by capturing language use during the mundane activity of composing a narrative and by giving voice to the emic perspective of the participants. My position in the research process had three complementary vantage points. The first vantage point was my multilinguality. I am a multilingual myself who is very familiar with many of the experiences and issues described by the participants in the study, and thus they readily acknowledged that I was “one of them”. This situation acted as a facilitating factor during the interview sessions because I could easily relate to what the participants talked about. The second vantage point was me as a researcher who undertook the study of the particular group of multilinguals and observed their language use as part of their behaviour in two interview sessions and a think-aloud activity. The third vantage point was that of the researcher who undertook the interpretation of collected data and filtered them through their personal knowledge to grasp meaning and reach new understandings. In this latter process, creative intelligence— the ability to synthesize a large amount of data, the ability to combine personal

insights with external reality and create something new (Sternberg, 2003, 2011)—played a major role.

In the attempt to provide transparency for the points of view I adopted in the research process and the interpretations I made, I included a detailed description of my research procedures, including data analysis. The main purpose of the detailed description is to expose my interpretations to the academic community and provide for internal replication described by Dey (2007) as the opportunity to “reproduce comparable results from the data” (p. 187).

The undertaken research is to be considered among the first steps taken in the direction of enriching understanding about the MML. The findings of the study are valuable; nonetheless, they offer only partial views of reliance of languages in the MML. One of the main strengths of the study is the fact that it offers several new avenues for further research in the direction of widening the scope of the formulated substantive theory, substantiating it, that is, improving it.

## 7 Pedagogical implications

The present findings have relevance not only for attempts to model the organization and functioning of the MML. They have special implications in educational contexts, mainly for language classrooms, because they support evidence from prior work that learning and using a foreign language are processes highly dependent on the context in which they occur (e.g., Herwig, 2001; Singleton, 1999). Furthermore, the findings may nuance educators’ understanding and treatment of their multilingual students’ occasional delay in information retrieval in one of their languages: sluggish retrieval cannot always be equated with lack of knowledge; it can be an indication of processing information in more than one language.

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## Publications and conference presentations by the author

### PUBLICATIONS

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### CONFERENCE PRESENTATIONS

"Hungarian Multilinguals Writing in an L3," British and American Studies Timisoara XXIII Conference, Humanities Section, Multilingualism Subsection, West University of Timisoara, Timisoara, Romania, May 16—18, 2013

"Writing in a Third Language: Hungarian-Romanian Bilingual EFL Writers in a Second Language Educational Context," 19th Congrés International des Linguistes, Language Pedagogy Section, Multilingualism Subsection, University of Geneva, Geneva, Switzerland, July 21—27, 2013

"Inner-discursive practices of bilingual Vietnamese-Hungarians: An exploratory study of multilingual self-talk," British and American Studies Timisoara XXIV Conference, Humanities Section, Multilingualism Subsection, West University of Timisoara, Timisoara, Romania, May 15—17, 2014

"The Case for Graphic Narratives for Researching Multilingual Mental Dialogue," The International Scientific Conference: Globalization, Intercultural Dialogue and National Identity, Petru Maior University, Targu-Mures, Romania, May, 29—30, 2014

"Dimensions of Multilingualism: Hungarian-Romanian and Vietnamese-Hungarian Bilinguals Writing in English," AILA World Congress 2014, Griffith University, Brisbane, Australia, August 10—15, 2014